

Amendment to the Claims

1. (currently amended) An apparatus for removing hydrogen from a fluid comprising hydrogen, HF and aerosol electrolyte from a fluorine generator, the apparatus comprising:
an electrolyte aerosol removal unit connected to the fluorine generator and containing an aerosol removal composition wherein the electrolyte aerosol removal unit is adapted to allow the fluid to flow there through; and
a catalytic unit connected to the electrolyte aerosol removal unit, the catalytic unit and comprising a forced air convection duct surrounding and containing a catalytically activated combustion surface comprised of comprising one or more layers of wire screen positioned inside of a forced convection duct, the catalytically activated combustion surface adapted to combust the hydrogen in an oxygen-containing stream flowing through the forced air convection duct.
2. (original) The apparatus of claim 1 wherein the apparatus is modular.
3. (original) The apparatus of claim 1 wherein the apparatus is portable.
4. (previously presented) The apparatus of claim 1 wherein the aerosol removal unit is in bed form.
5. (original) The apparatus of claim 1 wherein the aerosol removal composition comprises a composition selected from the group consisting of soda lime, sodium fluoride, heated activated aluminum oxide, finely divided nickel, or combination thereof.

6. (currently amended) The apparatus of claim 1 wherein the aerosol removal unit and the catalytic unit are connected by a conduit comprising a nickel tube or a nickel-lined tube.
7. (previously presented) The method of claim 16 wherein the aerosol removal unit is maintained at a temperature of 25°C to 200°C.
8. (canceled)
9. (canceled)
10. (previously presented) The method of claim 16 wherein the catalytically activated combustion surface is maintained at a temperature of at least 70°C.
11. (previously presented) The method of claim 10 wherein the catalytically activated combustion surface is maintained at a temperature of at least 200°C.
12. (previously presented) The apparatus of claim 1 wherein the aerosol removal unit and catalytic unit are positioned at a distance from the fluorine generator.
13. (previously presented) The apparatus of claim 1 wherein the aerosol removal unit and the catalytic unit are mounted on top of the fluorine generator.
14. (previously presented) The apparatus of claim 1 wherein individual wires of the wire screen may be the same or different in composition, diameter, and orientation.
15. (previously presented) The apparatus of claim 1 wherein the wire screen is a 10-ply layer of 95 percent platinum, 5 percent rhenium alloy screen.

16. (currently amended) A method for disposal of hydrogen in a fluid comprising hydrogen and residual amounts of HF and aerosol electrolyte from a fluorine generator, the method comprising:

flowing the fluid through an electrolyte aerosol removal unit containing an aerosol removal composition to contact the fluid with the aerosol removal composition and form a hydrogen-rich fluid reduced in aerosol; and contacting the hydrogen-rich fluid reduced in aerosol with a catalytically activated combustion surface comprising one or more layers of wire screen, the catalytically activated combustion surface being positioned inside of and surrounded by a forced air convection duct, while an oxygen containing stream flows through the forced air convection duct to combust the hydrogen.

17. (canceled)

18. (currently amended) A method for generating fluorine and disposal of by-product hydrogen in a fluid comprising hydrogen, residual amounts of HF and aerosol electrolyte from a fluorine generator, the method comprising:

generating a fluorine-rich stream and a hydrogen-rich stream from the fluorine generator, the hydrogen-rich stream comprising minor amounts of electrolyte and hydrogen fluoride;

purifying the fluorine-rich stream to produce a purified fluorine stream; and treating the hydrogen-rich stream to reduce the aerosol content and combust the hydrogen by:

flowing the hydrogen-rich steam through an electrolyte aerosol removal unit containing an aerosol removal composition to produce a hydrogen-rich fluid reduced in aerosol; and

contacting the hydrogen-rich fluid reduced in aerosol with a catalytically activated combustion surface comprising one or more layers of wire screen, the catalytically activated combustion surface being positioned inside of and surrounded by a forced air convection duct, while an oxygen containing stream flows through the forced air convection duct.

19. (currently amended) The apparatus according to claim 1 wherein the oxygen-containing stream is air, or exhaust gases, or mixtures thereof.